

Quiet Commercial Aircraft via Reduced Slat Deflection

Completed Technology Project (2017 - 2018)



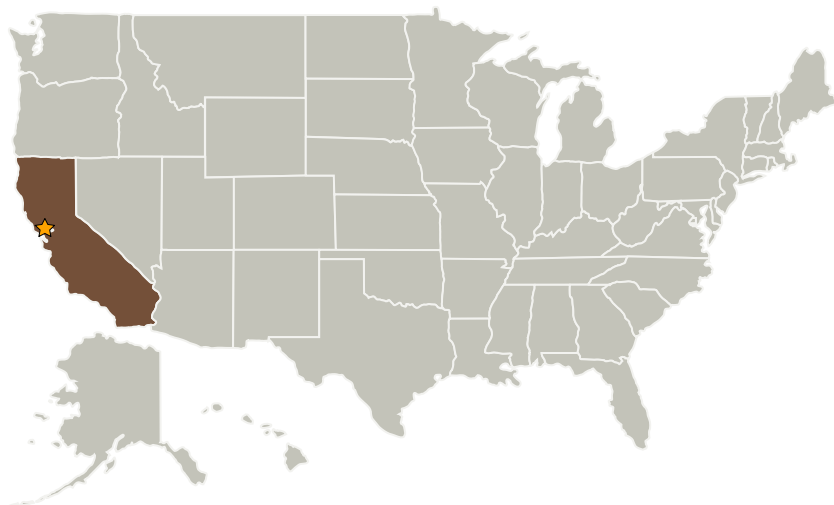
Project Introduction

We will conduct CFD for several slat deflections including the design configuration of 22 deg as well as lower slat deflections ranging from 6 - 16 deg. For optimum results, the computations will employ the LAVA solver on overset grids, a combination that has been proven effective for high-lift aerodynamic simulation. The computations will include numerous angles of attack to adequately identify the maximum lift which determines the minimum flight speed of the associate slat configuration. In collaboration with FAA, the variation in maximum lift with slat deflection will then be analyzed to determine the effect, if any, on air traffic control in the terminal area.

Anticipated Benefits

High slat deflections generate community flyover noise far from airport. However, both NASA and industry noise reduction efforts focus at the FAA certification point one mile from landing. We plan to demonstrate adequate aerodynamic performance of slat deflections lower than those commonly employed by commercial aircraft during early landing approach.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
★ Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Federal Aviation Administration(FAA)	Supporting Organization	US Government	Washington, District of Columbia

Primary U.S. Work Locations

California

Project Website:

https://www.nasa.gov/directorates/spacetech/innovation_fund/index.html#.VC

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Center Innovation Fund: ARC CIF

Project Management

Program Director:

Michael R Lapointe

Program Manager:

Harry Partridge

Principal Investigator:

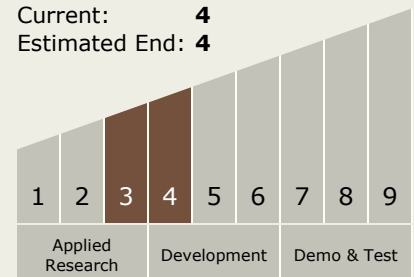
Bruce L Storms

Technology Maturity (TRL)

Start: 3

Current: 4

Estimated End: 4



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Technology Areas

Primary:

- TX15 Flight Vehicle Systems
 - └ TX15.1 Aerosciences
 - └ TX15.1.6 Advanced Atmospheric Flight Vehicles

Target Destination

Earth